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AUTHOR Cohn, Elchanan; Williams, C. Glyn
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ABSTRACT

A study investigated the effects on the labor market of various proposed retirement options for teachers in South Carolina. First, questionnaires were sent to personnel officers in the 91 South Carolina school districts eliciting, first, facts and estimates relating to the supply of and demand for teachers and, second, their opinions on the ways in which the various retirement options would affect the teacher labor market in the state. Next, questionnaires were sent to 5,402 teachers to gather information on the labor supply. Twenty-two tables show data from the questionnaires. The first questionnaire (of personnel officers), with a 51% return rate, provided information on the following: (1) vacancies, applicants, offers, and hires; (2) teacher shortage areas; and (3) expected labor supply effects of seven new retirement options. The teachers' questionnaire, with 75% return rate, yielded information on teachers' retirement plans. Included are tables showing the number and percentage of South Carolina public school teachers who plan to leave public school teaching prior to retirement, along with percentage data on their planned activities, number of years prior to retirement, and responses to various new retirement system options. Seven major conclusions were drawn from the study, suggesting that early retirement options will have a very modest effect on the labor supply, but that improved fringe benefits might make the South Carolina public school system more attractive to potential employees. (TE)

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LABOR MARKET EFFECTS OF PROPOSED RETIREMENT OPTIONS FOR TEACHERS IN SOUTH CAROLINA

by

Elchanan Cohn

and

C. Glyn Williams

Department of Economics

University of South Carolina

Columbia, S.C. 29208

Paper prepared for presentation at the Annual Meeting of the American Education Finance Association, March 9, 1989, San Antonio, Texas

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Labor Market Effects Of Proposed Retirement Options For Teachers In South Carolina

In considering various retirement options we were interested in estimating the labor market effects of the different options. We decided to use two data sources for this purpose. First, we sent out questionnaires to Personnel Officers in the 91 school districts eliciting facts and estimates relating to the supply of and demand for teachers in South Carolina, and their opinions on the ways in which the various retirement options would affect the teacher labor market in the state. Second, we included labor supply questions on the questionnaires that were sent to 5,402 teachers. We intended that the two sets of data would provide complementary information on which we could base reasonably reliable judgements as to the labor market effects of the retirement options.

Questionnaires to Personnel Offices

We sent out questionnaires to the 91 school district Personnel officers. A total of 47 generally usable questionnaires were returned for a 51 percent response rate. We are attaching to this report a copy of the two-page questionnaire (see Appendix A). In it we asked for information on the number of FTE classroom teachers employed in the district during the past three years; and the total FTE numbers of vacancies, applicants, positions offered and new teachers hired for each of the four years during the period 1985-86 through 1988-89. We asked the Personnel officers to identify certification or subject matter areas where critical shortages exist, and in a separate question, to identify subject areas that would become increasingly critical in the event of one of the proposed retirement options being made into law. We also asked them to provide information on anticipated separations through 1994-95 among FTE teachers under the various proposed alternative retirement options. In their calculations the officers were asked to consider a) the number of teachers eligible for retirement under each of the options, b) the probability that such teachers would take advantage of the more favorable retirement availability, and c) other likely separations. Since there is no a priori reason to believe that teachers will automatically retire as soon as they qualify for full retirement benefits, we asked the Personnel officers to use their best judgement or in many cases personal knowledge of the individual teachers in arriving at estimates of anticipated separations.

To ascertain that our sample is representative of all school districts in the state, we tested the hypotheses that our sample is not significantly different from the universe of all 91 districts in regard to the following variables: The dropout rate, years of experience of the teaching staff, the percent of teachers who are male, the average salary of the teaching staff, and assessed real property valuation per pupil in average daily membership in the district. The results of our test procedure indicate that none of the sample variables are significantly different from the respective population variables at probability levels of 10 percent or lower, suggesting very strongly that the null hypotheses of no significant differences should be accepted.

The tables that follow have been drawn up from data provided in the questionnaires. Since they are shown in the report under abbreviated headings, the discussion here will provide a fuller description of the variables along with discussion of the findings.

Vacancies, Applicants, Offers and Hires

Ratio of Applicants to Vacancies. Table 1 reports on the ratio of applicants for positions to the vacancies announced by school districts in

Table 1-Ratio of Applicants to Vacancies: 1986, 1987, and 1988

Range of Ratio	1986	1987	1988
0 - 1	1.0	1.0	1.0
1.01 - 5	13.0	14.0	12.0
5.01 - 10	12.0	12.0	14.0
10.01 - 15	5.0	5.0	5.0
15.01 - 20	2.0	1.0	3.0
20 or over	2.0	3.0	2.0
Mean of Ratio	8.5	8.3	8.9

1986, 1987 and 1988. Job seekers, of course, apply to many school districts, so that the applicant figure contains substantial multiple-counting. However, the picture presented in the table shows a fairly loose market in which applications are about 8 or 9 times the vacancies.

Ratio of Offers to Applicants. Table 2 provides information on the ratio of positions offered to vacancies. As can be seen from the table, almost all school districts are making offers for all vacancies, an indication that schools are maintaining their staff complements even as enrollments decrease. It seems reasonable to assume that if schools are altering their staff numbers, the reasons are not related to the scarcity or abundance of teachers but rather to some factor peculiar to the situation.

Table 2-Ratio of Positions Offered to Vacancies: 1986 - 1988

Range of Ratio	1986	1987	1988
0 - 0.99	0.0	4.0	2.0
1	38.0	36.0	37.0
1.00 - 1.30	2.0	2.0	2.0
Mean of Ratio	1.0	1.0	1.0

Ratio of Hires to Offers. Table 3 gives a picture that is a bit different. It shows the ratio of hires to offers as being slightly less than one, but still at between .94 and .97 for the 3 years 1986-1988. These results are driven entirely by the experience of one district that made 4, 2, and 3 offers in 1986, 1987, and 1988, respectively, but did not hire anyone during these years. All other districts were able to fill all of their vacancies.

Table 3-Ratio of Hires to Offers: 1986 - 1988

Range of Ratio	1986	1987	1988
0	1.0	1.0	1.0
0.01 - 0.5	0.0	0.0	0.0
0.51 - 0.99	7.0	5.0	9.0
1	32.0	34.0	31.0
1.01 - 1.50	0.0	2.0	0.0
Mean of Ratio	0.96	0.97	0.94

Table 4-Ratio of Vacancies to FTE Staff: 1986-1988

Range of Ratio	1986	1987	1988
0 - 0.01	0.0	0.0	0.0
0.02 - 0.05	2.0	3.0	3.0
0.06 - 0.10	10.0	12.0	21.0
0.11 - 0.20	23.0	24.0	18.0
0.21 - 0.50	6.0	5.0	2.0
Mean of Ratio	0.13	0.13	0.11

Turnover: Ratio of Vacancies to FTE Staff. The picture presented by Table 4 gives perspective to the turnovers portrayed in the figures of the preceding tables. It shows the ratio of vacancies to FTE staff in the school districts responding to the survey. Since vacancies, positions offered, and hires have an almost unitary relation to one another, the ratios show a substantial rate of turnover among South Carolina teachers, about 11 to 13 per 100 in the reported statistics. This implies that, on average, between 11 and 13 percent of teachers have been replaced each year during the period 1986-1988, for a cumulative replacement of approximately 37 percent during the 3-year period. (Note that these figures might overstate the degree of turnover in personnel because some positions could have experienced turnover in more than one year during the period.)

Teacher-Shortage Areas

Existing Shortages. Tables 5 through 8 show the existence of shortage areas as perceived by the responding school district officials. We were interested in the current shortages and in the way in which the Personnel Officers of the districts would predict how their districts would be affected by the replacement of the current retirement system by some other scheme, permitting early retirement without loss of benefits. Table 5 shows that, of the school districts responding, only 6 percent had no shortage subject areas; 15 percent had one shortage area; 24 percent had

Table 5-Number of Schools listing Shortage Areas, 1988		
Shortage Areas	# Districts Reporting	% Districts Reporting
None	2.0	5.9
1	5.0	14.7
2	8.0	23.5
3	11.0	32.4
4	6.0	17.6
5	0.0	0.0
6	2.0	5.9
Total	34.0	100.0

two; 32 percent had three; and 23 percent had 4 or more.

The questionnaire listed some subject areas known to be in a shortage category.[1] These are shown in Table 6. Here it can be seen that 82 percent of School Districts show Special Education as a shortage area; 53 percent show Foreign Languages; 44 percent show Mathematics; 35 percent show Science; 32 percent show Library; and 18 percent show Vocational Education. Other areas that were listed separately by responding district offices were Media Specialist (8 Districts); Computer Science and Data Processing (2 Districts); and English (3 Districts). Thus, even though the tables relating vacancies, applications, positions offered, and hires show a teacher market that is in overall balance, our results suggest that schools often hire individuals who, though certified, may not be well suited for the specific tasks for which they are hired. There are clearly shortage areas.

Table 6-Subject Areas Listed as Shortage Categories, 1988	
Subject Areas	% of Respondents
Special Education	82.4
Foreign Languages	52.9
Mathematics	44.1
Science	35.3
Library	32.4
Vocational Education	17.6

Anticipated Shortages Due to Early Retirement. As noted earlier, we were interested in how a more favorable retirement scheme would affect the perception of district offices regarding these shortages. It should be borne in mind that a more favorable retirement scheme could either accentuate or ease a tight market -- the former by inducing a higher outflow of older teachers, the latter by inducing a higher inflow or retention of young teachers. Table 7 shows that the perceived impact of a more favorable retirement option would be to accentuate shortages, but only very modestly. 56 percent felt that 1 or no shortage area would be worsened, 71 percent felt 1 or fewer would be made more acute. Only one district officer observed that a more favorable retirement option might ease the 4 shortage subjects that had earlier been reported. The officer stated, "I believe reducing the retirement to 25 years of service will help me in receiving and retaining teachers providing my pay levels rise." Why only one officer felt this way might be explained by a short run view that officials seem to hold in regard to the impact of an earlier retirement system. But in any case, the perception of the impact was either negligible or towards accentuating existing shortages. Table 8 shows those subject areas reported as being affected by new retirement proposals. For the most part, they are the same areas as currently are in short supply.

Expected Labor Supply Effects of New Retirement Options

Tables 9 and 10 report the figures which school district officers were asked to predict, showing anticipated separations under the current retirement system and several proposed new retirement options. This is shown as Page 2 of the Questionnaire (see Appendix A). The table is complex, and all the figures have an element of "best estimate" in their calculation. However, Table 9 gives us two figures that are fairly reasonable. The first of these states that, compared with the current law, a retirement system that provided for full benefits after 25 years of service at any age would result in an increased retirement outflow of 16.6 percent; and a retirement system of 25 years, 55 years of age minimum

1 See "Teacher supply and demand for South Carolina public schools: 1986-87 update," Management Information Section, Office of Research, South Carolina Department of Education, Columbia, S.C., November 1987.

Table 7-Number of Schools Listing Shortage Areas in 1988, and the Estimated Effect of New Retirement Proposals

# of Shortage Areas in 1988	Frequency	Cumulative Percentage	# With More Due to Proposals	Cumulative Percentage
None	2.0	5.9	9.0	26.5
1	5.0	20.6	10.0	55.9
2	8.0	44.1	5.0	70.6
3	11.0	76.5	4.0	82.4
4	6.0	94.1	3.0	91.2
5	0.0	94.1	2.0	97.1
6	2.0	100.0	1.0	100.0

for full benefits would increase the outflow beyond current levels by 5.5 percent.

Tables 9 and 10, taken together, provide the figures from the sample, and their value when calculated for the entire SC teaching system. It should be borne in mind that the numbers of anticipated separations in Table 10 are based on the assumption that the experience of districts in South Carolina that were not in the sample would be similar to that of districts in the sample. Also, translating "separations" to "vacancies" would imply that the demand by districts for teachers would be approximately equal to what it is today. If these assumptions are accepted, then the data in Table 10 suggest that Option 2 would result in 431 additional vacancies each year (over and above what is expected to occur with no change in the law), for a total of 2,155 vacancies for the period 1990-91 through 1994-95. On the other hand, the negative figures, suggesting a lower vacancy rate are suspect. The options include the retirement benefits available to teachers under current law; thus, a reduction in the number of separations, compared to estimates for the current retirement law, are inconsistent with the increased vacancy rates anticipated for options 2 and 4.

Table 8-Subject Areas Listed as Areas Affected by New Retirement Proposals

Subject Areas	% of Respondents
Special Education	41.2
Foreign Languages	29.4
Mathematics	41.2
Science	35.3
Library	17.6
Vocational Education	11.3

The 431 additional expected separations per year, associated with the most radical early-retirement proposal, does not appear to be overly burdensome. Given a turnover rate of between 11 and 13 per cent, anticipated vacancies per year, assuming FTE teachers to remain at 35,110, would range between 3,862 and 4,564. The additional separations would, therefore, amount to only between 9.4 and 11.2 percent of "normal" vacancies. Moreover, if the number of FTE teachers increases, and if a more modest retirement option is selected (for example, option 4), then the additional burden on labor supply imposed by early-retirement legislation would be considerably reduced.

Finally, the respondents were asked to predict their ability to fill whatever vacancies that would be created during the period 1990-91 through 1994-95 as a result of either current law or alternative retirement options. Only three districts indicated some inability to replace all separations, for at least some of the options (including Option 1), but even those districts indicated that an average of 90 percent of vacancies could be filled. Overall, we get a strong impression that anticipated vacancies could be filled, although it must be stressed that the optimum replacements might not always be found.

Table 9-Anticipated Cumulative Separations[a], 1990-91 through 1994-95, Under Various Retirement Provisions, For Sample Districts

Retirement Options	Expected # of Separations	% Difference Relative to Current Law	Average Yearly Separations as % of FTE teachers[b]
Option 1 Retire after 30 years of service or at age 65; retire at age 60 with penalty (Current Law)	5,206	0.0%	7.4%
Option 2 Retire after 25 years of service, at any age	6,068	+ 16.6	8.6
Option 3 Retire after 25 years of service, at any age, with phase in	4,872	-6.4	6.9
Option 4 Retire after 25 years of service, at age 55	5,490	+ 5.5	7.8
Option 5 Retire after 25 years of service, at age 55, with phase in	5,009	-3.8	7.1
Option 6 Retire after 25 years of service, at age 60	4,877	-6.3	6.9
Option 7 Retire after 25 years of service, at age 60, with phase in	4,542	-12.8	6.5

[a] Separations include retirees and all others who leave teaching.

[b] Full-time equivalent number of teachers in 1988 for the sample was 14,058.

Table 10-Anticipated Separations, 1990-91 through 1994-95, Under Various Retirement Provisions, Extrapolated for the Entire State of South Carolina

Retirement Option[a]	Cumulative # of Separations for Entire Period	# of Separations Per Year	Difference in # of Separations Per Year from Option 1
Option 1	13,015	2,603	0
Option 2	15,170	3,034	+ 431
Option 3	12,180	2,436	-167
Option 4	13,725	2,745	+ 142
Option 5	12,523	2,505	-98
Option 6	12,193	2,439	-164
Option 7	11,355	2,271	-332

[a] For description of the options, see Table 9

Note: FTE number of teachers for the entire state in 1988 was estimated by the South Carolina Department of Education to be 35,110.

The Teachers Questionnaire

Questionnaires were sent to 5,402 teachers in 23 districts. School districts were stratified by Congressional District, and a random sample of school districts was selected from each Congressional District. The school districts of Greenville, Charleston, and Richland 1 were not included in the sample selection procedure, but approximately 100 teachers were randomly selected from each of these districts.

We analyzed attributes of the 20 randomly-selected districts in comparison to the state as a whole. Variables that were examined include the dropout rate (DROPOUT), years of experience of the teaching staff (TEAEXP), percent of teachers who are male (MEN), average salary of the teaching staff (AVGSAL), and assessed valuation per pupil of real property (VALUE). Data for these variables are provided in Table 11.

The results of our analysis clearly indicate that the attributes of the sample school districts examined here are not significantly different from those of the state as a whole, indicating that our sample is "representative."

This questionnaire is an important part of the **Teacher Retirement Initiative** study of South Carolina public school teachers. Its purpose was to elicit teachers' views and feelings about proposed changes in the SC State retirement system, as it relates to teachers. A total of 4054 usable questionnaires were returned, giving a remarkably high response rate of 75 percent. In 1988, the FTE number of public school teachers in South Carolina was estimated by the South Carolina Department of Education to be 35,110. It is appropriate, therefore, to multiply any of the sample's absolute figures by 8.6 in order to extrapolate sample numbers to the state as a whole. We will use this multiple throughout this section

Table 11-Selected Attributes of School Districts: 20-District Sample vs. all 91 Districts in South Carolina, 1986-87

Variable	Sample mean	State mean	T-ratios for mean differences
DROPOUT	4.13	3.95	-0.41
TEAEXP	11.89	11.64	-0.71
MEN	17.66	18.16	0.74
AVGSAL	22,722.30	22,767.09	0.14
VALUE	7,813.05	8,487.09	0.63

Note: Data were derived from the 1988 edition of the Rankings of the Counties and School Districts of South Carolina (Columbia, S.C.: Department of Education, 1988). None of the t-ratios were statistically significant at any acceptable level of significance.

of the report when applying sample results to the entire State public education system.

New Retirement Options

The changes in the South Carolina Retirement System that were envisaged as possible options were as follows:

Retirement at age 60 with 25 years of service, at the rate of 0.017 per year of service (denoted in this study as 60:25)

Retirement at age 55 with 25 years of service, and at a rate of 0.017 (55:25)

Retirement at any age with 25 years of service, and at a rate of 0.017 (AA:25)

Retirement at age 60 with 25 years of service, at the rate of 0.02 per year of service (60I:25)

Retirement at age 55 with 25 years of service, at a rate of 0.02 (55I:25)

Retirement at any age with 25 years of service, at a rate of 0.02 (AAI:25)

Demographic Variables

Some of the demographic characteristics of the South Carolina public school teachers are shown in the Methodology background paper. Although the demographics may be of interest to the reader, only some have a direct relevance to the issue of the retirement proposals under discussion here.

Labor Market Effects of Early Retirement

The basic question that we sought to answer regarding the labor market effect of various retirement options was the following:

How would the supply of currently employed South Carolina public school teachers be affected by the introduction of one of a set of proposed retirement options varying in their degree of favor to the employee?

We considered the effects on supply from two perspectives: first, the difference that retirement options made as an inducement to retire, and second, the encouragement to teachers made by early-retirement options to forego plans that they might have to take up some form of economic activity other than that of "public school teacher in South Carolina." To arrive at estimates of the effects of retirement system options on the retirement and resignation decisions of teachers we elicited answers to the following questions:

1. *What are your present thoughts with regard to each of the proposed retirement options? At eligibility for full benefits would you definitely retire, probably retire, are you not sure, would probably not retire, or definitely not retire?*
2. *Do you plan to leave public school teaching in South Carolina prior to retirement?*
3. *If you do so plan to leave, then*

   a) when do you expect to do so?

   b) what kind of other job or activity do you expect to do?

   c) would your plans be influenced by the enactment of each of the proposed retirement options described earlier?

On the basis of answers to these questions, taken in conjunction with age and years of service of respondents, we were able to arrive at several conclusions.

Issue 1

What percentage of public school teachers believe that they would definitely or probably retire at full eligibility under various retirement options? Table 12 shows estimates of the percentages for each option.

Depending upon the generosity of the retirement option, between 63.9 percent and 82.4 percent of public school teachers say that they will definitely or probably retire at eligibility for full retirement benefit.

Table 12-Number and Percent of South Carolina Public School Teachers Who Would Definitely or Probably Retire at Full Eligibility Under Various Proposed Retirement Options

Plan	Sample #	S.C. #	Percent
60:25	1,994	17,226	63.9
55:25	2,084	18,004	67.7
AA:25	2,888	24,949	77.2
60I:25	2,027	17,511	64.3
55I:25	2,232	19,282	71.0
AAI:25	3,095	26,738	82.4

In responding to the question on which this table is based, the teachers may have been expressing their relative preference for the options. However, it is also possible that the increased probabilities of retirement, as retirement options become more generous, reflect a desire to take advantage of the option to retire in order to do alternative work. This desire would be greater the younger the age at which the teacher reached retirement age.

Table 13-Number and Percent of South Carolina Public School Teachers Who Have Plans to Leave Public School Teaching in South Carolina Prior to Retirement

	Plans?	
	Yes	No
Sample Number	1,096	2,931
S.C. Number	9,468	25,321
% of Total	27.2	72.8

Issue 2

What numbers and percentages of South Carolina public school teachers believe that they could or will leave the position of "public school teacher in South Carolina" prior to retirement? Table 13 provides some evidence on this important question.

Table 14-Planned Activities of Teachers Who Desire to Leave Public School Teaching in South Carolina Prior to Retirement

Planned Activity	Percent
Private school teacher in S.C.	1.3
Teach in another state	6.8
Return to school	2.6
Non-teaching role in public ed.	10.7
Non-education public sector	12.5
Private sector (business/industry)	28.4
Other	37.7
Total	100.0

Table 15-Number of Years Within Which Those With Plans to Leave S.C. Public School Teaching Prior to Retirement Plan to Retire

Years	Sample #	S.C. #	Percent
3 or less	287	2,481	26.2
4 - 7	275	2,377	25.1
8 - 10	190	1,638	17.3
11 - 20	247	2,130	22.5
21 or more	98	843	8.9

Respondents' planned activities are shown in Table 14. The figures show that of respondents with plans to leave public school teaching in South Carolina prior to retirement, 28.4 percent intended to either enter into business or be employed in private industry. 37.7 percent of respondents selected "other," an option that could represent other working plans or absence from the labor force. Given that 82.0 percent of the respondents were female, that 74.3 percent were married living with spouse, and that of this latter group the spouses of 91.1 percent of the respondents were employed, the other option probably includes many who planned to cease working outside the home.

Table 16-Number and Percent of Teachers With Plans to Leave "Public School Teaching in S.C." Prior to Retirement Whose Plans Would Be Changed by the Various Proposed Retirement System Options

	Sample #	Percent
No Change	344	31.3
60:25	47	4.2
55:25	43	3.9
AA:25	159	14.5
60I:25	24	2.1
55I:25	47	4.2
AAI:25	433	39.5
Total	1096	100.0

Another question that was asked of those who had plans to leave public school teaching in

Table 17-Number and Percent of S.C. Public School Teachers Answering Not Applicable to Question Whether Plans "to Leave Your Present Position and Not Seek Another Public School Teaching Position in SC" Would be Affected by an Improved Retirement Plan

Plan	#	Sample Total	%
60:25	2,061	3,009	68.5
55:25	2,055	3,001	68.5
AA:25	2,063	3,021	68.3
60I:25	2,053	2,999	68.5
55I:25	2,056	3,000	68.5
AAI:25	2,058	3,016	68.2
Average for all plans	2,058	3,008	68.4

South Carolina was when they thought this separation would occur. The data are shown in Table 15.

Table 16 provides information concerning the number of teachers whose plans to leave public school teaching in South Carolina would be influenced by a change in the SC retirement system that would offer early retirement with full benefits.

An interesting figure in Table 16 is the 31.3 percent representing 344 out of the 1,096 sample respondents, with plans to leave public school teaching in South Carolina, whose plans will not be changed by early retirement. This figure means that (a) 68.7 percent (100-31.3) of potential leavers could be influenced in their decision to leave, if early retirement options were to become available.

Issue 3

We were interested to know the extent to which teachers in the South Carolina public school system have plans to leave the position of "public school teacher in South Carolina"; the relationship of age and years of service in the system to the consideration of such plans; and, the extent to which retirement options could be a factor in those plans.

Data displayed and described in Tables 17 and 18 suggest the following conclusion. Sample responses showed that 31.6 percent of South Carolina public school teachers believe they could or will take up some activity other than "public school teacher in South Carolina"; of these, 68.7 percent say they could be influenced in their decision by a more favorable retirement plan. This implies that 21.7 percent of South Carolina public school teachers could be influenced in career decisions by the enactment of early retirement options.

Table 18- Number and Percent of SC Public School Teachers Answering No to Question Whether Plans to Leave Public School Teaching in SC Prior to Retirement Would be Altered by a More Favorable Retirement Plan

Plan	(1) Would Not Alter Plans	(2) Plan to Leave	(1) as a % of (2)	Plans Would Alter (% of (2))
60:25	297	948	31.3	68.7
55:25	298	946	31.5	68.5
AA:25	299	958	31.2	68.8
60I:25	298	946	31.5	68.5
55I:25	296	944	31.4	68.6
AAI:25	299	958	31.2	68.8
Average for all plans	298	950	31.3	68.7

Comments: 31.6% of SC public school teachers believe they could accept a position other than public school teacher in SC; of these, 68.7 percent say they could be influenced in their decision by a more liberal retirement plan (i.e., 21.7% of the SC public school teachers could be influenced in career decisions by a change in retirement policy).

How does teacher age affect plans to leave public school teaching in South Carolina and responsiveness to changes in the retirement system? Data shown in Table 19 suggest the following:

a) The percentage of South Carolina public school teachers with plans to leave public school teaching in South Carolina tends to decrease with age. In the age group of 25 and less years of age, 36.8 percent suggest that they could or will leave this position prior to retirement, decreasing to 22.3 percent in the age group 56-60 years.

b) The percentage of South Carolina public school teachers whose plans to leave public school teaching in South Carolina could be altered by an improved retirement plan tends to be highest for lower age groups. For the 26-35 years of age group the percentage is 72.1, and for the 36-45 group it is 69.8. It falls to 55.6 percent for the 51-55 age group.

Both of these findings are significant for policy. The younger groups are more mobile, and they are also more attracted to a 25 year retirement option. With increasing age, mobility decreases and the commitment to decisions based on earlier circumstances becomes more inviolable. Thus, whereas it was shown that, in general, 31.6 percent of South Carolina public school teachers believe they could or will accept a position other than "public school teacher in South Carolina" prior to retirement, this figure is 36.8 for the 25 or younger age group, and 36.3 for the 26-35 years of age group. Similarly, while the percentage indicating that their plans could be altered by an improved retirement plan was 68.7 overall, the figure was 72.1 percent for the 26-35 age group, and 69.8 for the 36-45 group (see Table 20).

Table 19-Percent of SC Public School Teachers Answering Not Applicable to the Question Whether "Plans to Leave Your Present Position and Not Seek Another Public School Teacher Position in SC" Would be Affected by an Improved Retirement Plan, by AGE

Age	Percent
25 or under	63.2
26 - 35	63.7
36 - 45	69.3
46 - 50	73.3
51 - 55	74.5
56 - 60	77.7
61 or over	76.7

Table 20-Percent of SC Public School Teachers Answering No to the Question Whether Plans to Leave Their Present Position Would be Altered by an Improved Retirement Plan, By AGE

Age	Percent
25 or under	36.8
26 - 35	27.9
36 - 45	30.2
46 - 50	34.2
51 - 55	44.4
56 - 60	38.7
61 or over	-

Comments: The percentage of SC public school teachers with plans to leave public school teaching in SC falls with age, from 36.8% for those under 25 to 22.3% for those 56-60. The percentage of teachers whose plans could be altered tends to be highest in age groups 26-35 (72.1%) and 36-45 (69.8%) and then decline up to age 55. As teachers age their careers tend to become less flexible, and earlier circumstances become dominant in career tracks.

It follows from this discussion that a change in the South Carolina retirement system relating to public school teachers would influence more than 20 percent of them at a time in their lives when it could affect their career decisions. The AA:25 and AAI:25 options would be particularly effective; the 60I:25, 60:25, 55I:25 at 55:25 options would also have favorable retention results, though considerably weaker than the Any Age options.

Issue 4

We were interested in finding out how many teachers would retire if more favorable retirement options were adopted by the SC retirement system. Table 21 summarizes the combination of age and years of service that provide the outer limit to the numbers involved. For example, if AAI:25 or AA:25 were introduced next year, the

Table 21-Number of Respondents, by Years of Service and Age			
	Years of Service		
Age	21-25	26-30	31 or more
36-45	116	4	0
46-50	118	65	0
51-55	62	67	23
56-60	44	42	28
61 or over	13	15	11
Total	353	193	62

maximum number of retirees in the state would be 8.6 {(0.4 x 353) ÷ 193 ÷ 62} = 3423[2].

However, it is obvious that a substantial percentage of eligible teachers do not retire at their first chance. There are in the sample 62 teachers who have 31 or more years of service, many of whom would retire if the benefit ratio were increased from 1.7 percent per year of service to 2.0 percent. In addition, a third of the respondents distinguished very clearly between the two AA:25 options and the four age explicit options 60I:25, 60:25, 55I:25, and 55:25. The age-explicit options reduce by a factor of about one-third the interest of teachers in early retirement. The AA:25 options might also have a substantially larger impact as a recruiting device than the age-explicit options.

Anticipated Gross and Net Retirements and Total Separations for 1990-91. The primary focus of this section of the report is on labor market effects of early retirement. Data described in the preceding sections were employed to estimate three variables for 1990-91: (1) The number of individuals who would be eligible for retirement under the new options and who indicated that they would definitely or probably retire; this is shown in Column 1 of Table 22. (2) The number of individuals who would be eligible even under the present retirement plan (age 65 and over or 30 years of service) who indicated that they would definitely or probably retire; this is shown in Column 2 of the table. (3) An estimated number of individuals indicating that they plan to leave their teaching position in the public schools of South Carolina in 1990-91, but whose plans would be changed if one of the new options were available; these estimates are shown in Column 3 of Table 22. Net number of retirements due to the new options is the difference between Columns 1 and 2, whereas net (additional) number of separations due to the new options is the difference between Column 1 and the sum of Columns 2 and 3. These figures are displayed in Columns 4 and 5, respectively. Finally, Column 6 extrapolates Column 5 to the state as a whole.

It is apparent that teachers appeared to be much more affected by the two options offering

Table 22-Numbers of Teachers, by plan, Who Would Retire in 1990-91, and Net Separations Due to Early-Retirement Options						
Plan	# Who Want to Retire	# Who Are Eligible Under Present Plan	# Who Would Change Plans on Leaving	Net Retirements [Col.(1) - Col. (2)]	Net Separations [Col. (1) - (Col. (2) + (Col. (3)]	Net Separations Extrapolated to the State [Col. (5)x8.6]
	1	2	3	4	5	6
60:25	62	62	5	0	-5	-43
55:25	57	49	10	8	-2	-17
AA:25	222	65	28	157	129	1,109
60I:25	69	69	8	0	-8	-69
55I:25	72	59	23	13	-10	-86
AAI:25	241	118	49	123	74	636

2 It is assumed that the distribution of respondents within any age group is linear (i.e., 1/5 of the age group in each age), and that the age-years of service distribution in the state is identical to that found in the sample.

retirement with 25 years of service at any age. The weak response to the other options is difficult to explain, since for many teachers the 55:25 option is identical to the AA:25 option. Certain inconsistencies in the data for the four plans in which age is a factor suggest that we should focus our attention only on AA:25 and AAI:25.

The data shown in Table 22 suggest that net (additional) separations from the teacher labor force in South Carolina in 1990-91 as a result of the institution of AA:25 and AAI:25 would be 1,109 and 636, respectively. Given a labor force of approximately 35,000 teachers, these numbers represent a turnover rate of between 2 and 3 percent. Given earlier data on teacher turnover of between 11 and 13 percent per year, additional separations due to fairly liberal early-retirement options would imply a turnover rate of between 13 and 16 percent. We have reasons to believe, however, that the numbers provided in Column 6 of Table 22 are probably too large. One reason is that these numbers are based on responses of teachers to an hypothetical question regarding retirement, not to actual retirement plans. Our data strongly suggest that individuals who are eligible for retirement are less likely to contemplate actual retirement than teachers who are not yet eligible for retirement. Support for this contention comes from a study by Hogarth using data for New York State, showing that the probability of accepting retirement for eligible persons increased only by 10 percent (from 0.3 to 0.33) when a bonus consisting of "additional three years' service to vested state employees who were 55 years and older" (p. 23) was offered.[3] The study also showed that of employees eligible for retirement, only 40 percent accepted retirement. In our opinion, therefore, the data shown in Column (6) of Table 22 for the AA:25 and AAI:25 options are exaggerated.

3 Jeanne M. Hogarth, "Accepting an Early Retirement Bonus: An Empirical Study," Journal of Human Resources 23 (1) (Winter 1988): 21-33.

Conclusions

The two samples that were utilized to study labor-market consequences of several new retirement options for teachers in South Carolina provide the following major conclusions:

1. At the present time, there appears to be an ample supply of applicants for available teacher vacancies. Although teachers might apply to more than one district, the average of 8.9 applicants per vacancy suggests no shortage of applicants.

2. At the same time, our data do not reveal what types of teachers are sought by the schools, and whether the quality of the applicant pool is at least comparable to that of the group of retiring teachers. Our data do suggest that some teaching areas, already in shortage, might suffer increased shortages if new retirement plans were offered.

3. The turnover ratio in schools is fairly large (an average of 11 - 13 percent in recent years).

4. The results of the District Questionnaire (that was sent to personnel officers) suggest a very modest impact of early retirement options on labor supply. Only Options AA:25 and 55:25 appear to cause positive additions to teacher separations. For Option AA:25 the additional number of separations per year are estimated to be only 431, representing an increase in retirements of 16.6 percent over the number of retirements that would occur with no new plans. These results contrast sharply with our estimates that were based on the teachers' questionnaire, in which plan AA:25 is expected to increase separation in 1990-91 by as much as 42.6 percent. Given that the District's questionnaire provided questionable results with respect to the effect of 4 early- retirement plans, we tend to believe that the estimates for AA:25 are too low. The correct figure is probably somewhere between 431 (the lower limit) and 1,109 (the upper limit). Note that even the upper limit represents a turnover rate of only 3 percent. If the applicant pool continues to remain as large as it has been during the past 3 years, then it appears that, in general, school districts in the state would be able to replace retiring teachers. One must concede that problems might occur in some areas which have difficulty in attracting teachers, as well as in some subject-matter areas (e.g., math, science, foreign languages, and vocational education) in which shortages might be aggravated, at least temporarily.

5. Results from the Teachers' Questionnaire indicate that teachers in South Carolina are extremely interested in new early-retirement options, preferring by a large margin the AA:25 and (especially) the AAI:25 options.

6. A large percentage (27.2) of public school teachers in the state have plans to leave their teaching position in the South Carolina public school system. Of the latter, more than two-thirds might change their plans and remain in their positions if some early retirement plans were instituted. Early retirement would therefore have two positive effects: (a) many teachers currently employed by the public school system would remain on the job longer than they would otherwise, and (b) public school teaching in the state would become more attractive, making it easier to replace retiring teachers and increasing the potential labor supply pool -- which might also help ease shortages in such areas as math, science, foreign languages, and vocational education.

7. Overall, although the data clearly indicate net additional separations from the teacher labor force due to proposed new retirement options, the effect does not appear to be very large, and the long-run effect might well be positive, to the extent that improved fringe benefits would make the South Carolina public school system more attractive to potential employees.

APPENDIX A

Center of Educational Policy, USC
District:

DISTRICT QUESTIONNAIRE ON TEACHER SUPPLY AND DEMAND

1. How many FTE classroom teachers were employed in your district during the past three years?

   1985-86_____ 1986-87_____ 1987-88_____

2. Regarding classroom teachers, please provide the total FTE numbers of vacancies, applicants, positions offered, and new teachers hired for the following years:

	1985-86	1986-87	1987-88	1988-89
a. Vacancies				
b. Applicants				
c. Positions Offered				
d. New Teachers Hired				
e. Percent of (d) from out of state				

3. Please identify any certification or subject-matter areas where critical shortages exist, such as mathematics, science, special education, foreign languages, or vocational education.

4. Please identify those areas in which critical shortages might arise or become more acute in the event that the legislature will enact one of the early retirement proposals discussed above.

5. Please provide additional comments (if any) on this part of the survey.

6. In the table below, please fill in the numbers of anticipated separations (that is, the number of positions becoming vacant due to all causes, including resignations, retirements, deaths, or dismissals) and the percent of these separations that you expect to fill during the first five-year period following implementation of the proposed early retirement options. Please refer to the first page of our letter for a complete description of the early retirement options considered here.

In calculating the anticipated number of separations, consider (a) the number of teachers eligible for retirement under each of the options, (b) the probability that such teachers will take advantage of retirement eligibility, and (c) other likely separations. Note that early retirement options might actually reduce the number of resignations, if some teachers might decide to continue teaching if earlier retirement is possible. Although you cannot be certain of how earlier retirement options will affect retirement and resignation choices, your familiarity with teachers should enable you to make an educated guess about such decisions. All that we ask of you is to give us your best estimate of the teachers' responses to the availability of earlier retirement options.

EARLY RETIREMENT OPTION	ANTICIPATED SEPARATIONS (FTE TEACHERS)					PERCENT OF SEPARATIONS YOU EXPECT TO FILL				
	1990-91	1991-92	1992-93	1993-94	1994-95	1990-91	1991-92	1992-93	1993-94	1994-95
1. No change from present law (baseline data)	____	____	____	____	____	____	____	____	____	____
2. 25 Years, any age, no phase-in	____	____	____	____	____	____	____	____	____	____
3. 25 Years, any age, phase-in	____	____	____	____	____	____	____	____	____	____
4. 25 Years, age 55, no phase-in	____	____	____	____	____	____	____	____	____	____
5. 25 Years, age 55, phase-in	____	____	____	____	____	____	____	____	____	____
6. 25 Years, age 60, no phase-in	____	____	____	____	____	____	____	____	____	____
7. 25 Years, age 60 phase-in	____	____	____	____	____	____	____	____	____	____

7. Please provide additional comments (if any) on this part of the survey. Thank you for your effort.